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& ampersand

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⁊ ⁊ ond

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GT Lie bialg on $|\Bbbk\pi|$

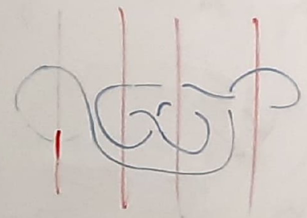
$[,] : |\Bbbk\pi| \otimes |\Bbbk\pi| \to |\Bbbk\pi|$

$\delta^+ : |\Bbbk\pi| \to |\Bbbk\pi| \otimes |\Bbbk\pi|$

$K = \dfrac{\text{knots in PD studio}}{\text{HOMFLY relns } (+?)}$

$[,]$ = commutator

δ^+ = double + separate



$\mathcal{A} \twoheadrightarrow S \xhookrightarrow{\Upsilon} CW$

Assoc graded GT Lie bialg

$[,]_{KKS} : CW \otimes CW \to CW$

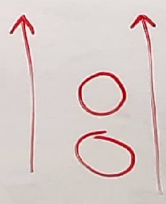
$\delta^+_{alg} : CW \to CW \otimes CW$

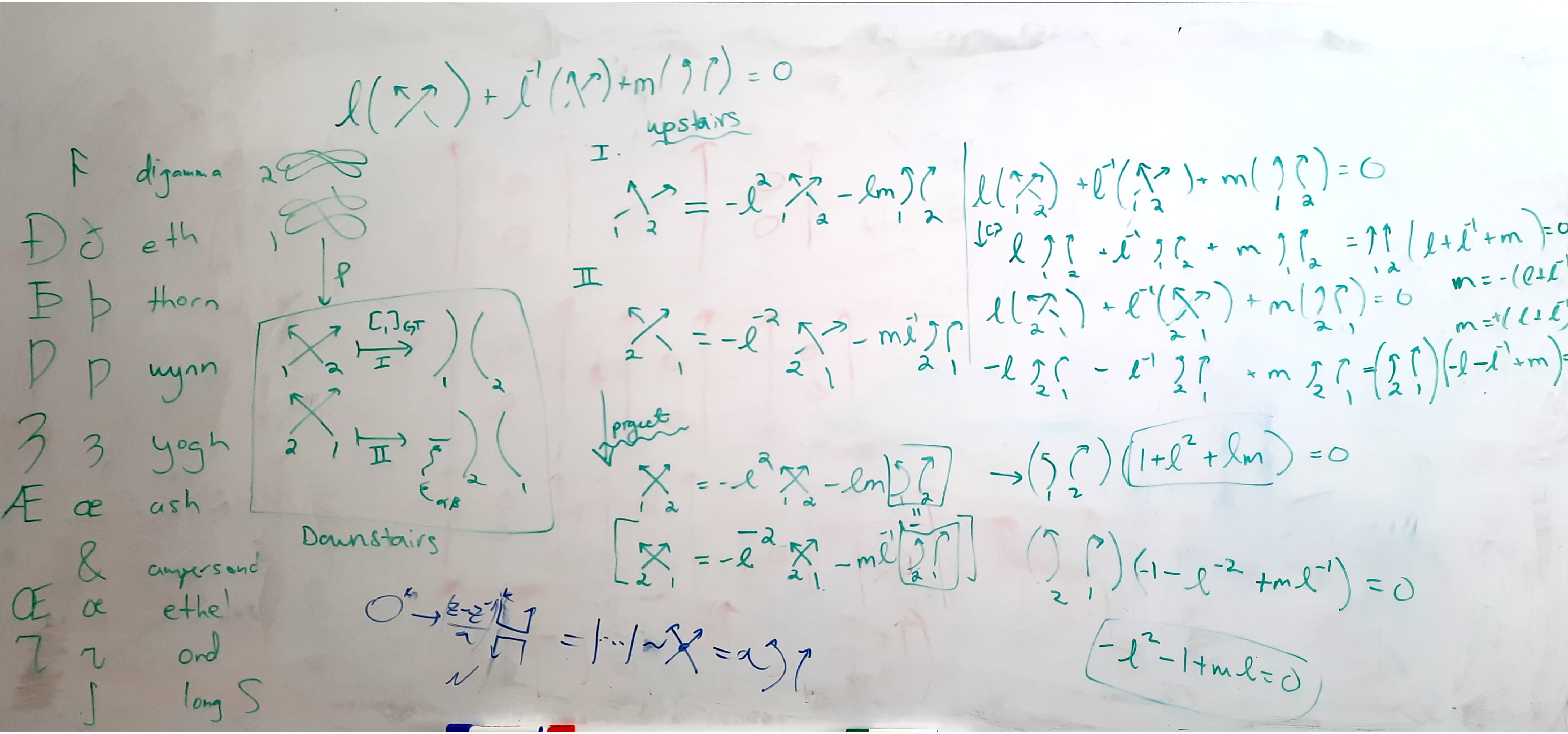
no chords between ||||

$$\begin{tikzcd} S(\underbrace{\uparrow\uparrow}_{k} \bigcirc)^{\otimes 2} \arrow[r, "\Upsilon\otimes\Upsilon"] \arrow[d, "{[,]}"', "\text{comm.}"] & CW_2^{\otimes 2} \arrow[d, "{[,]_{KKS}}"] \\ S(\underbrace{\uparrow\uparrow}_{k} \bigcirc)^{\otimes 2} \arrow[r, "\Upsilon"] & CW_2 \end{tikzcd}$$

similar interp. for δ^+_{alg}

→ Δ and separate?





upstairs
I.
II
Ϝ digamma
Ð ð eth
Þ þ thorn
Ƿ ƿ wynn
Ȝ ȝ yogh
Æ æ ash
& ampersand
Œ œ ethel
⁊ ⁊ ond
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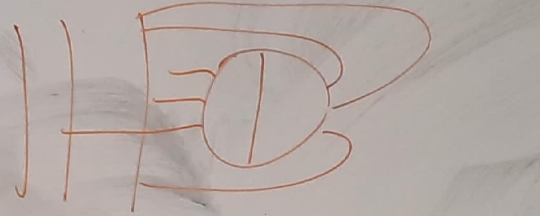
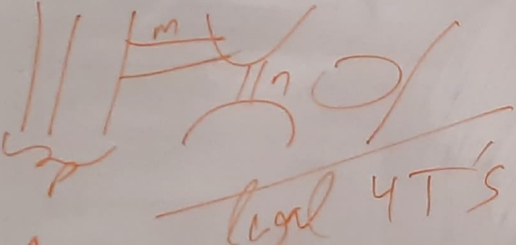
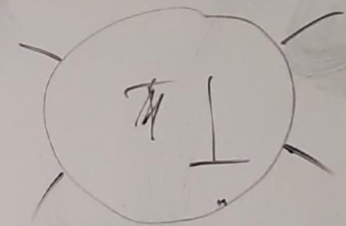
p
[,]GT
Downstairs
project
m = -(ℓ+ℓ⁻¹
-ℓ²-1+mℓ=0

$Z : \mathcal{T}(PDS_p) \to \mathcal{A}(PDS_p)$







$Z_{m,n} : \mathcal{T} \to \vec{\mathcal{A}}_{\le m, \le m}$

Knot mutations $\xleftrightarrow{\text{Josh}}$ "Whitney flip"

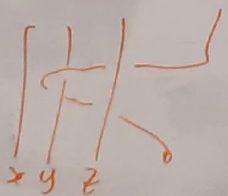
$\big\downarrow$ whitney

2-isomorphism

$Z_{\infty,0} : \mathcal{T} \to \vec{\mathcal{A}}_{\le \infty, 0}$

$\mathcal{C}$

$A > B$, $C > D$ $\to$ $\dfrac{A/B}{C/D}$



$Z_{\infty,1}(x), Z_{\infty,1}(y) \in \vec{\mathcal{A}}_{\infty,1}$

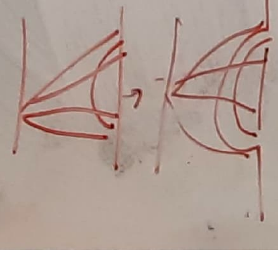
$\dfrac{A/B}{C/D} = \dfrac{A}{B+C}$

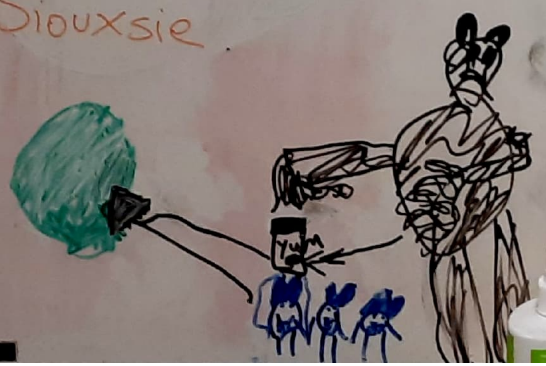
Siouxsie

$\mathcal{T}(PDS_p) \supset F_{m,n}$

pd switches

od switches





$\mathcal{K}_p = \left\langle \begin{matrix}\text{Links in} \\ \text{a } PDS_p\end{matrix} \right\rangle \xrightarrow{\exists \text{ expansion } Z} \mathcal{K} = \mathcal{A} = \bigoplus \mathcal{A}_{m,n} = \langle \quad \rangle / \text{"legal 4T"}$

const. Kontsevich. / Associators (may depend on legal-ization thm)

homomorphic w.r.t.:
1. stacking
2. Flipping
(Maybe also deleting comps)

Doubly-Filtered by
strand cross strand : m
& strand cross pole : n
filtration

s-deg p-deg

$\deg a = (1, 0)$

$\bar{\mathcal{A}}_p = \mathcal{A}_p[a] /$ Strand HOMFLYPT rel.

$\bar{\mathcal{K}}_p = \mathcal{K}_p[a] / \ldots$

<u>Claim</u>

$Z : \mathcal{K}_p \longrightarrow \mathcal{A}_p$

$\bar{Z} : \bar{\mathcal{K}}_p \longrightarrow \bar{\mathcal{A}}_p$

$= a$

$= (e^{a/2} - e^{-a/2})$

$a + \ldots$

$Z(\times) = Z(\times) - Z(\times)$

$= \times e^{\frac{c}{2}} - \times e^{-\frac{c}{2}} \in \mathcal{A}$

$= (e^{a/2} - e^{-a/2})$

$= e^{a/2} - e^{-a/2} \, Z(\ldots) \to a$

$\bar{Z} : \mathcal{K}/\mathcal{K}_{1,*} \longrightarrow \mathcal{A}/\mathcal{A}_{1,*} = \mathcal{A}_{0,*} = \quad / \begin{matrix}\text{log} \\ 4Ts\end{matrix} \sim \quad = ACW$

" GCW

$\bar{Z}|_{\mathcal{K}/\mathcal{K}_{2,*}} \in \mathcal{A}/\mathcal{A}_{2,*} = \{\sim\} + \left\{\begin{matrix}\text{s-deg 0} \\ \text{stuff} \\ ACW\end{matrix}\right\} \cdot a$

" $\{\ \} + a\{GCW\}$

$\bar{Z}$